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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/091,063 | 03/04/2002 | Gamdur Singh Mann | DP-306500 | 6695 |
| 7590 | 12/07/2004 | | EXAMINER | |
| MARGARET A. DOBROWITSKY DELPHI TECHNOLOGIES, INC. Legal Staff, Mail Code 480-414-420 P.O. Box 5052 Troy, MI 48007-5052 | | | CREPEAU, JONATHAN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1746 | |

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------|--------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/091,063 | MANN, GAMDUR SINGH |
| | Examiner | Art Unit |
| | Jonathan S. Crepeau | 1746 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 March 2002.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-21 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Objections

1. Claims 11 and 21 are objected to because of the following informalities: “recystalized” should be “recrystallized.” Appropriate correction is required.

Claim Rejections - 35 USC §102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 5-11 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Palumbo (U.S. Patent 6,342,110). The reference is directed to lead-acid battery electrodes comprising lead alloy grids. Regarding

claims 1 and 11, the grids have a “recrystallized” grain structure (see abstract). Regarding claims 2 and 3, the grids comprise lead, calcium, and tin (see col. 10). Regarding claim 5, the grid is expanded mesh (see col. 11, line 8). Regarding claim 8, the grids are heat-treated at a temperature of 150-280 degrees C to achieve the disclosed grain structure (see col. 8, line 50). At col. 10, line 34 et seq. the reference discloses the testing of pasted grids. Although the reference does not appear to teach that the grids are pasted *before* heat-treatment, as recited in claim 1, the patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Furthermore, once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See also MPEP §2113. Accordingly, the instant claims are not considered to be distinguished over Palumbo et al.

5. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (U.S. Patent 5,401,278). The reference is directed to a method of making lead-acid battery plates. Regarding claim 5, the electrode comprises an expanded metal grid (see abstract). Regarding

claims 2-4, the grid comprises a Pb-Ca-Sn alloy having 0.05-0.09 wt% Ca and 0.6-1.8 wt% Sn (see col. 2, line 33). Regarding claims 1 and 12, the electrode is made by a process comprising the steps of pasting the grid and heat-treating the pasted grid at 60-80 degrees C for 20-28 hours (see col. 6, line 66 et seq.). Although not expressly stated, this heat-treatment would inherently cure the paste in the early stages thereof. Regarding claim 12, the step of "forming" the electrode by passing a current through the cell is also met by the reference because the cycling (i.e., charging and discharging) of the battery is disclosed in Table 2.

The reference does not expressly teach that the heat treatment is conducted at at least 125 C, as recited in claim 12, or that the grid contains an "interconnected" or "recrystallized" grain structure as recited in claims 1, 11, 12, and 21.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be sufficiently motivated to heat treat the pasted grid of the reference at at least 125 C, thereby producing the claimed crystal structure. The reference teaches that 60-80 C is preferred for the heat treatment. However, in col. 6, line 58, the reference teaches the following regarding the temperature:

20-28 hours for the aging. Further, after the tensile strength reached the maximum one at 90° C., it lowers to too great an extent to control the aging time and stably obtain the desired strength of the grid. In order to stably obtain the desired high tensile strength of the grid, the aging temperature is in the range of 60°-80° C. under the above aging time condition, as is seen from FIG. 6.

Looking at Fig. 6, it is seen that the tensile strength at 90 C is *higher* than that obtained at 80 C. Therefore, the artisan would be motivated to use even higher temperatures to obtain higher tensile strengths. The reference effectively identifies the temperature as a result-effective

variable that affects the tensile strength of the product. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). This would be the case even in light of the negative teachings regarding the stability of obtaining the grid at temperatures higher than 80 C. In other words, it is believed that the disclosure of the reference would not sufficiently dissuade the artisan from the performing the heat treatment at high temperatures. It is submitted that the artisan would be sufficiently skilled to control the time of heat-treatment to stably obtain a grid at high temperature, which is the problem addressed in the above passage.

Further, Applicant's claimed grain structure would be a natural result of performing the heat-treatment of the grid in the manner set forth in the preceding paragraph. As such, these limitations would also be rendered obvious.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the

organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jonathan Crepeau
Primary Examiner
Art Unit 1746
December 3, 2004